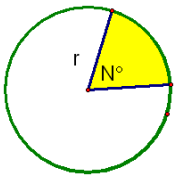
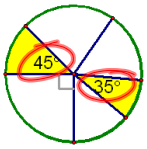
11-5 Geometric Probability



Area of Sector

$$A = \frac{N}{360}\pi r^2$$

Find the area of each sector.



d = 18 in

r = 9

$A = \frac{45}{360} 9^2\pi$

$\approx 31.8 in^2$

$A = \frac{35}{360} 9^2\pi$

$24.7 in^2$

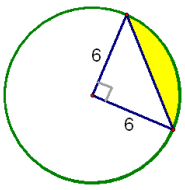
Find the area of the segment.

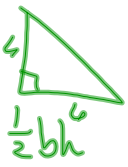
Sector − △

$\frac{90}{360} 6^2\pi - \frac{1}{2} 6 \cdot 6$

$9\pi - 18$

$\approx 10.3 u^2$





$\frac{1}{2}bh$

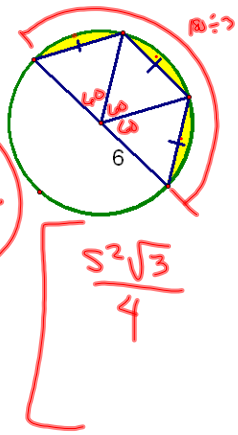
Find the area of the shaded region.

Sector − 3△s

$\frac{180}{360} 36\pi - 3\left(\frac{6^2\sqrt{3}}{4}\right)$

$18\pi - 27\sqrt{3}$

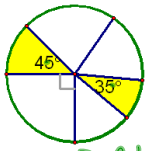
$9.8 u^2$



$\frac{s^2\sqrt{3}}{4}$

Probability = $\frac{\text{\# of successes}}{\text{\# of outcomes}}$ ex 1

What is the probability that a point (in the circle)chosen at random lies in the shaded region?



d = 18 in

$P = \frac{\text{Area of shaded}}{\text{Area of full picture}}$

$\frac{56.5}{(81\pi)} \approx .22$

Alternate Sectors Only

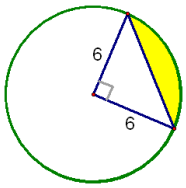
work with degrees

$\frac{80}{360} = .22$

Probability = $\frac{\text{\# of successes}}{\text{\# of outcomes}}$

What is the probability that a point (in the circle)chosen at random lies in the shaded region?

ex 2

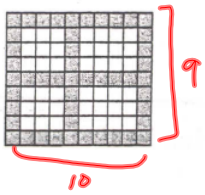


$P = \frac{10.3}{(36\pi)}$

$= .09$

Worksheet examples.

1.

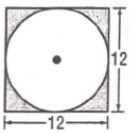


$P = \frac{48}{90} = .53$

2.

$P = \frac{30}{100} = .3$

3.



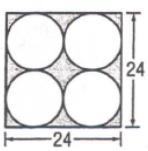
$P = \frac{\text{shaded}}{\text{Full}}$

$\frac{Sq - Circle}{Sq}$

$\frac{144 - 36\pi}{144}$

$P = .21$

4.

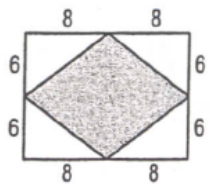


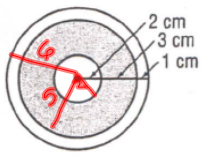
$\frac{Sq - 4\ circles}{Sq}$

$\frac{24^2 - 4(36\pi)}{24^2}$

$P = .21$

5.

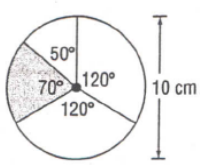


6. 

$\frac{A_{med} - A_{sm}}{A_{lg}}$

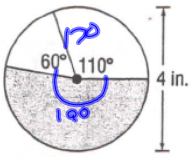
$\frac{25\pi - 4\pi}{36\pi}$

.58

1. 

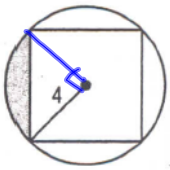
$P = \frac{70}{360}$

$= .19$

2. 

$\frac{190}{360}$

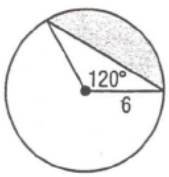
$P = .53$

3. 

$\frac{A_{sector} - A_{\triangle}}{A_{circle}}$

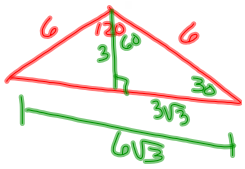
$\frac{\frac{90}{360} 16\pi - \frac{1}{2} 4 \cdot 4}{16\pi}$

$= .09$

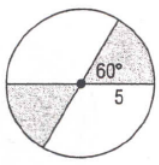
4. 

$\frac{A_{sector} - A_{\triangle}}{A_{circle}}$

$\frac{\frac{120}{360} 36\pi - \frac{1}{2} 3 \cdot 6\sqrt{3}}{(36\pi)}$



$= .20$

5. 

6.

HW
p625-626
7, 10-12, 16-19